

Claims

1. A universal four-channel multimedia computer speaker system connectable to an audio sub-system control circuit of a multimedia computer, comprising:
- four separately positionable audio speakers;
- inputs for receiving from the audio sub-system control circuit at least a first one of two pairs of audio input signals;
- outputs for delivering distinct audio output signals to each of the four audio speakers, a first pair of the audio speakers receiving audio output signals corresponding to the first one of two pairs of audio signals; and
- a proxy audio signal component coupled to the outputs to provide to a second pair of the audio speakers a pair of distinct proxy audio output signals whenever the inputs receive only the first one of two pairs of audio input signals.
2. The computer speaker system of claim 1 in which the second pair of the audio speakers receive audio output signals corresponding to the second one of the two pairs of audio input signals whenever the inputs receive both the first and second pairs of audio input signals.
3. The computer speaker system of claim 1 further comprising a housing that supports the inputs and outputs and encloses the proxy audio signal component.
4. The computer speaker system of claim 3 in which the housing further encloses one of the four audio speakers.
5. The computer speaker system of claim 3 in which the housing further encloses none of the audio speakers of the computer speaker system.

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6. The computer speaker system of claim 1 further comprising a sub-woofer speaker that is within a sub-woofer housing and receives a sub-woofer audio signal, the sub-woofer housing supporting the inputs and outputs and enclosing the proxy audio signal component.

5            7. The computer speaker system of claim 1 in which the pair of distinct proxy audio output signals are generated from the first one of two pairs of audio input signals.

8. The computer speaker system of claim 7 in which the pair of distinct proxy audio output signals include inverse differences of the first one of two pairs of audio input signals.

9. The computer speaker system of claim 7 in which the first one of two pairs of audio input signals includes a right front audio signal  $R_{\text{STEREO}}$  and a left front audio signal  $L_{\text{STEREO}}$  and the pair of distinct proxy audio output signals includes a right rear audio signal  $R'_{\text{REAR}}$  and a left rear audio signal  $L'_{\text{REAR}}$ ,  
15 wherein the proxy audio output signals correspond to the right and left front audio signals as follows:

$$R'_{\text{REAR}} = R_{\text{STEREO}} - L_{\text{STEREO}}$$

$$L'_{\text{REAR}} = L_{\text{STEREO}} - R_{\text{STEREO}}.$$

10. The computer speaker system of claim 1 further comprising a signal  
20 enhancing filter that filters the pair of distinct proxy audio output signals for  
enhanced acoustic effect.

11. In a four-channel multimedia computer speaker system having inputs connectable to receive four distinct audio input signals from an audio sub-system control circuit of a multimedia computer and outputs connectable to four separately positionable audio speakers, the improvement comprising:

a proxy audio signal component selectively coupled to the outputs to provide to a pair of the audio speakers a pair of distinct proxy audio output signals that are generated from a pair of audio input signals.

5 12. The computer speaker system of claim 11 further comprising a switch element that selectively couples the proxy audio signal component to the outputs.

13. The computer speaker system of claim 11 in which the switch element is manually operable by a user.

10 14. The computer speaker system of claim 11 in which the switch element is operates automatically according to which inputs are connected to receive audio input signals from an audio sub-system control circuit.

15 15. The computer speaker system of claim 11 further comprising a housing that supports the inputs and outputs and encloses the proxy audio signal component.

16. The computer speaker system of claim 15 in which the housing further encloses one of the four audio speakers.

17. The computer speaker system of claim 15 in which the housing further encloses none of the audio speakers of the computer speaker system.

20 18. The computer speaker system of claim 11 further comprising a sub-woofer speaker that is within a sub-woofer housing and receives a sub-woofer audio signal, the sub-woofer housing supporting the inputs and outputs and enclosing the proxy audio signal component.

25 19. The computer speaker system of claim 11 in which the pair of distinct proxy audio output signals are generated from a first two of the four audio input signals.

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$$\begin{aligned} R'_{\text{REAR}} &= R_{\text{STEREO}} - L_{\text{STEREO}} \\ L'_{\text{REAR}} &= L_{\text{STEREO}} - R_{\text{STEREO}} \end{aligned}$$

15           23. In a four-channel/multimedia computer speaker system having inputs connectable to receive four distinct audio input signals from an audio sub-system control circuit of a multimedia computer and outputs connectable to four separately positionable audio speakers, the improvement comprising:

20 a proxy audio signal component selectively coupled to the outputs to provide to a pair of the audio speakers a pair of distinct proxy audio output signals that are generated from a pair of audio input signals; and

a first two of the four audio input signals including a right front audio signal  $R_{\text{STEREO}}$  and a left front audio signal  $L_{\text{STEREO}}$  and the pair of distinct proxy audio output signals including a right rear audio signal  $R'_{\text{REAR}}$  and a left rear audio signal  $L'_{\text{REAR}}$ , wherein the proxy audio output signals correspond to the right and left front audio signals as follows:

$$R'_{\text{REAR}} = R_{\text{STEREO}} - L_{\text{STEREO}}$$

$$L'_{\text{REAR}} = L_{\text{STEREO}} - R_{\text{STEREO}}$$

24. The computer speaker system of claim 23 further comprising a switch element that selectively couples the proxy audio signal component to the outputs.

5            25. The computer speaker system of claim 23 in which the switch  
element is manually operable by a user.

26. The computer speaker system of claim 23 in which the switch element is operates automatically according to which inputs are connected to receive audio input signals from an audio sub-system control circuit.

10            27. The computer/speaker system of claim 23 further comprising a housing that supports the inputs and outputs and encloses the proxy audio signal component.

28. The computer speaker system of claim 27 in which the housing further encloses one of the four audio speakers.

15            29. The computer speaker system of claim 27 in which the housing  
further encloses none of the audio speakers of the computer speaker system.

30. The computer speaker system of claim 23 further comprising a sub-woofer speaker that is within a sub-woofer housing and receives a sub-woofer audio signal, the sub-woofer housing supporting the inputs and outputs and enclosing the proxy audio signal component.

31/ The computer speaker system of claim 23 in which the pair of distinct proxy audio output signals are generated from a first two of the four audio input signals.

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32. The computer speaker system of claim 31 in which the pair of distinct proxy audio output signals include inverse differences of the first two of the four audio input signals.

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